

WHAT IS CLAIMED IS:

1. A laser device comprising:  
a light source for emitting a laser beam;  
a lens through which the laser beam emitted from said light source is transmitted; and  
a holder having a tubular portion for holding said light source and said the lens,  
wherein the internal surface of said tubular portion has a recess in a position in which the lens is held.

2. A laser device according to claim 1, wherein said recess is a penetrating portion penetrating said tubular portion from inside to outside.

3. A laser device according to claim 2, wherein said penetrating portion is provided over an end portion of said tubular portion on the opposite side of said light source, across a position of said lens.

4. A laser device according to claim 1, wherein said recess is provided over an end portion of said tubular portion on the opposite side of said light source, across a position of said lens.

5. A laser device according to claim 1, wherein said recess is space provided for supporting said lens and

adjusting relative positions of said lens and said light source.

6. A laser device according to claim 1, wherein said tubular portion has a fixing part to fix said lens therein.

7. A laser device according to claim 6, wherein said lens is fixed to said holder by an adhesive in said fixing part.

8. A laser device according to claim 7, wherein said fixing part has an adhesive pooling portion recessed in an optical axis direction of said lens.

9. A laser device according to claim 1, wherein said lens is a collimator lens for making a laser beam emitted from said light source a substantially parallel beam.

10. A laser scanning device comprising:  
a laser device; and

deflecting means for deflecting and scanning a laser beam emitted from said laser device,

wherein said laser device comprises a light source for emitting a laser beam, a lens through which the laser beam emitted from said light source is transmitted, and a holder having a tubular portion for holding said light source and said lens, and

wherein the internal surface of the tubular portion of said laser device includes a recess in a position where said lens is held.

*a* 11. An image forming apparatus comprising:  
a photosensitive member;  
a laser device;  
deflecting means for deflecting a laser beam emitted from said laser device; and

imaging means for imaging the laser beam deflected by said deflecting means on said photosensitive member,

wherein said laser device comprises a light source for emitting a laser beam, a lens through which the laser beam emitted from said light source is transmitted, and a holder having a tubular portion for holding said light source and said lens, and

wherein the internal surface of the tubular portion of said laser device includes a recess in a position where said lens is held.

12. A lens position adjustment method in a laser device, comprising the steps of:

fixing a light source emitting a laser beam to a holder having a tubular portion;

supporting a lens with a supporting members, positioning said supporting members in a recess provided in said tubular portion and adjusting relative positions

of said lens and said light source; and

fixing said lens to a fixing part of said tubular portion.

13. A lens position adjustment method in a laser device according to claim 12, wherein said recess is a penetrating portion penetrating said tubular portion from inside to outside.

14. A lens position adjustment method in a laser device according to claim 13, wherein said penetrating portion is provided over an end portion of said tubular portion on the opposite side of said light source, across a position of said lens.

15. A lens position adjustment method in a laser device according to claim 12, wherein said recess is provided over an end portion of said tubular portion on the opposite side of said light source, across a position of said lens.

16. A lens position adjustment method in a laser device according to claim 12, wherein said lens is fixed to said holder by an adhesive in said fixing part.

17. A lens position adjustment method in a laser device according to claim 12, wherein said fixing part has an adhesive pooling portion recessed in an optical axis direction of

said lens.

18. A lens position adjustment method in a laser device according to claim 12, wherein said lens is a collimator lens for making a laser beam emitted from said light source a substantially parallel beam.

19. A laser device comprising:

a light source for emitting a laser beam;

a lens through which the laser beam emitted from said light source is transmitted;

a holder having a tubular portion for holding said light source and said the lens; and

first and second recessed portions that are provided in said tubular portion and are open toward the end of said tubular portion on the opposite side of said light source across the position of said lens,

wherein said second recessed portion is shorter than said first recessed portion with respect to the optical axis direction of said lens.

20. A laser device according to claim 19, wherein said first and second recessed portions are penetrating portions penetrating said tubular portion from inside to outside.

21. A laser device according to claim 19, wherein said first recessed portion is space provided for supporting said

lens and adjusting relative positions of said lens and said light source, and said second recessed portion is space provided for pouring an adhesive into the part between said lens and said tubular portion.

22. A laser device according to claim 19, wherein a surface opposing an opening portion of said second recessed portion is slanted.

23. A laser device according to claim 19, wherein said lens is a collimator lens for making a laser beam emitted from said light source a substantially parallel beam.

*a* 24. A laser scanning device comprising:  
a laser device;  
deflecting means for deflecting and scanning a laser beam emitted from said laser device; and  
wherein said laser device comprises a light source for emitting a laser beam, a lens through which the laser beam emitted from said light source is transmitted, a holder having a tubular portion for holding said light source and said lens, and first and second recessed portions which are provided in said tubular portion and are open toward the end portion of said tubular portion on the opposite side of said light source across the position of said lens, and  
wherein said second recessed portion is shorter than said first recessed portion with respect to the optical axis

direction of said lens in said laser device.

25. An image forming apparatus comprising:

a photosensitive member;

a laser device;

deflecting means for deflecting a laser beam emitted from said laser device; and

imaging means for imaging the laser beam deflected by said deflecting means on said photosensitive member,

wherein said laser device comprises a light source for emitting a laser beam, a lens through which the laser beam emitted from said light source is transmitted, a holder having a tubular portion for holding said light source and said lens, and first and second recessed portions which are provided in said tubular portion and are open toward the end portion of said tubular portion on the opposite side of said light source across the position of said lens, and

wherein said second recessed portion is shorter than said first recessed portion with respect to the optical axis direction of said lens in said laser device.

26. A laser device comprising:

a light source for emitting a laser beam;

a lens through which the laser beam emitted from said light source is transmitted;

a holder having a tubular portion for holding said light source and said lens;

a first recessed portion for supporting the lens, which is provided in said tubular portion and is open toward the end of said tubular portion on the opposite side of said light source across the position of said lens; and

a second recessed portion for pouring an adhesive into the part between said lens and said tubular portion, which is provided in said tubular portion and is open toward the end of said tubular portion on the opposite side of said light source across the position of said lens.

27. A laser device according to claim 26, wherein said first and second recessed portions are penetrating portions penetrating said tubular portion from inside to outside.

28. A laser device according to claim 26, wherein a surface opposing an opening portion of said second recessed portion is slanted.

29. A laser device according to claim 26, wherein said lens is a collimator lens for making a laser beam emitted from said light source a substantially parallel beam.

30. A laser scanning device comprising:

a laser device;

deflecting means for deflecting and scanning a laser beam emitted from said laser device; and

~~wherein said laser device comprises a light source for~~



emitting a laser beam, a lens through which the laser beam emitted from said light source is transmitted, a holder having a tubular portion for holding said light source and said lens, a first recessed portion for supporting said lens, which is provided in said tubular portion and is open toward the end portion of said tubular portion on the opposite side of said light source across the position of said lens and a second recessed portion for pouring an adhesive into the part between said lens and said tubular portion, which is provided in said tubular portion and is open toward the end of said tubular portion on the opposite side of said light source across the position of said lens.

31. An image forming apparatus comprising:

a photosensitive member;

a laser device;

deflecting means for deflecting a laser beam emitted from said laser device; and

imaging means for imaging the laser beam deflected by said deflecting means on said photosensitive member,

wherein said laser device comprises a light source for emitting a laser beam, a lens through which the laser beam emitted from said light source is transmitted, a holder having a tubular portion for holding said light source and said lens, a first recessed portion for supporting said lens, which is provided in said tubular portion and is open toward the end portion of said tubular portion on the opposite side

of said light source across the position of said lens and second recessed portion for pouring an adhesive into the part between said lens and said tubular portion, which is provided in said tubular portion and is open toward the end of said tubular portion on the opposite side of said light source across the position of said lens.

32. A lens position adjustment method in a laser device comprising the steps of:

fixing a light source emitting a laser beam on a holder having a tubular portion;

supporting a lens with supporting members, positioning said supporting members in a first recessed portion provided in said tubular portion and adjusting the relative positions of said lens and said light source; and

pouring an adhesive from a second recessed portion provided in said tubular portion to fix said lens in a fixing part of said tubular portion.

33. A lens position adjustment method in a laser device according to claim 32, wherein said second recessed portion is shorter than said first recessed portion with respect to the optical axis direction of said lens.

34. A lens position adjustment method in a laser device according to claim 32, wherein said first and second recessed portions are penetrating portions penetrating said tubular

portion from inside to outside.

35. A lens position adjustment method in a laser device according to claim 32, wherein a surface opposing an opening portion of said second recessed portion is slanted.

36. A lens position adjustment method in a laser device according to claim 32, wherein said lens is a collimator lens for making a laser beam emitted from said light source a substantially parallel beam.

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